Exhibit F-
Part 2

1. (Currently Amended) A memory card interface apparatus comprising:

a plurality of memory card interfaces comprising a first subset to interface with a memory card of a first type and a second subset to interface with a memory card of a second type, wherein the memory card of the first type and the memory card of the second type are accessible in parallel to transfer data from the memory card of the first type to the memory card of the second type.

Amendments (Apr. 27, 2005). The applicants explained:

> In contrast [to the newly added limitation], Takase discloses an electronic information distributing terminal for writing electronic information (such as text information and corresponding motion image information) into a memory card. . . . Takase's terminal does not teach or suggest transfer data [sic] from the memory card of the first type to the memory card of the second type.

> Also, Pua discloses a multiple memory card adapter that comprises an interface for various types of memory cards, so that only one adapter is needed to allow different types of memory cards to be read from or written to by a host computer. Pua also does not teach or suggest transfer data [sic] from the memory card of the first type to the memory card of the second type.

> Thus, Takase and Pua, individually or in combination, do not teach or suggest transfer data [sic] from the memory card of the first type to the memory card of the second type, as claimed in independent claims 1, 10 and 19.

Id. at 6-7.

These amendments overcame the rejection, but the examiner issued a detailed notice of allowability explaining the improvements over the prior art, including discussion of U.S. Patent No. 6, 010,066 to Itou:[9]

> Itou et al . . . teaches transferring data from a first memory card to a second memory card (see column 1, lines 57-62, and column 2, lines 9-14). However, Itou et al fails to teach or suggest that the first

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[9] Until this point, the examiner had relied upon Itou in connection with claims 8 and 16 of the '623 patent (application claims 8 and 17), which call for a text display.

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memory card and the second memory card are different types or accessible in parallel. Since the transfer of data from a first memory card to a second memory card necessarily includes reading data from the first memory card and then writing the data to the second memory card, the examiner believes that this suggests accessing the first and second memory cards serially, rather than in parallel.

It is also noted that applicants have made a distinction between the memory cards being connected in parallel and the memory cards being accessible in parallel. As applicants have stated, the fact that interfaces are connected in parallel does not mean that access to the interfaces occurs in parallel (see page 7 of the amendment filed on 5/3/2004).

Therefore, without the benefit of applicant's teachings, there is no motivation for one of ordinary skill in the art at the time of the invention to combine the teachings of the prior art in a manner so as to create the claimed invention.

Notice of Allowability at 3 (July 19, 2005).

> b)   **Prosecution Disavowal Based Upon the File History**

The respondents argued that the effect of this exhaustive file history is to disavow switching between two memory cards from the scope of "accessible in parallel," and proposed to the ALJ a construction of "accessible in parallel" as "each transmitting or receiving data simultaneously at a given point in time." Order No. 23 at 60. TPL argued for the plain and ordinary meaning of the term, and as an alternative also argued that "accessible in parallel" means "capable of concurrent read/write access." *Id.* While this appears to be the same as the respondents' position, it is based upon a loose usage of "concurrent" in which fast switching back and forth between two memory cards is sufficient to practice the patent claims. *See, e.g.,* TPL Reply Pet. 11 n.1.

The ALJ found that the prosecution history does not disavow claim scope whereby only one memory card is accessed at a time. To the ALJ, accessible in parallel meant that any one of several inserted memory cards could be accessed at a time: "This language does

not require that the cards function simultaneously, but rather that it be possible for them to be in their respective slots simultaneously, so the operator of the system can access them without taking them in and out." Order No. 23 at 61.

We reverse the ALJ and adopt the respondents' proposed claim construction. We find that the above-quoted statement from Order No. 23 fails to take into account the applicant's statements in the prosecution history distinguishing Pua, as Pua accommodated multiple cards as well. The respondents' petition for review focuses on this point. Resp'ts Pet. 8-19. We agree with the respondents that the ALJ's construction reads the "in parallel" language out of the claims. *Id.* at 11-12. We find the applicants' statements in response to the second rejection to be especially clear to disavow claim scope. The applicants there explained: "that the interface 30 for each type of memory card is connected in parallel does not mean that access to the interfaces 30 occurs in parallel." Amendment at 7 (Apr. 29, 2004) (emphasis in original). The applicants continued (distinguishing Pua):

> Pua states, "If, for example, the host reads from or writes to a Compact Flash card, the microprocessor will switch this circuit to the Compact Flash interface. If, for example, the host reads from or to a Smart Media card, the microprocessor will switch this circuit to the Smart Media interface." Thus, in other words, depending on the type of card being written to or read from, the microprocessor switches the memory card switching circuit to the interface that supports the card being written to or from. Since the memory card switching circuit is switched between interfaces, it follows that no more than one interface can be operative at a given point in time. Thus, access to the interfaces does not occur in parallel.

Id.

In support of its argument against prosecution disavowal, TPL argues that the speed with which the switching occurs constitutes parallel access. TPL Reply Pet. 14-16. This argument misapprehends the prosecution history. The prosecution history surrounding the

Pua reference does not have to do with slow switching versus fast switching, but rather with whether switching is encompassed within the phrase "accessible in parallel." Based on the applicants' representations to the PTO, switching back and forth is beyond the scope of "accessible in parallel."

TPL also argues that a finding of disavowal causes construction difficulties with claim 17 of the '623 patent. TPL Br. 11. That claim, unlike claims 1 and 9, covers a method, rather than an apparatus, and includes the step of "selectively operating the first and second subsets to provide access to the memory cards of the first and second types in parallel to transfer data from the memory card of the first type to the memory card of the second type." TPL takes the position that "selectively" in this claim means accessing one card at a time. TPL Br. 11. TPL asserts that therefore, "the examiner (aware of the applicant's remarks) would not have allowed claim 17" based upon our construction of "accessible in parallel." *Id.* at 11-12.

In response to TPL's argument, the respondents assert that claim 17 "is no longer at issue." Resp'ts Reply Br. 10. They also observe that the "selectively" language was not at issue during prosecution, and that there is no reason to conjecture what the examiner could have done if such points had been raised during prosecution. *Id.* at 10-11. Moreover, they argue that "the most natural . . . reading of this phrase in view of the claim language is that the word 'selectively' denotes that it is the first and second interface subsets that are selected for operation . . . , not that the claim allows for – or requires – operating these interfaces one at a time." *Id.* We agree with the respondents' arguments.

Based upon our claim construction, there is no dispute that the accused products use "disclaimed prior art switching circuitry." Resp'ts Pet. 14-18; TPL Reply Pet. 15-16.

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Accordingly, we find that the accused products do not infringe the asserted claims of the '623 patent.[10]

The respondents argued on petition that the asserted claims of the '623 patent are invalid as anticipated or obvious only under the ALJ's construction of "in parallel." Resp'ts Pet. 19-38. Because we reject the ALJ's claim construction, we do not reach the respondents' validity arguments based upon that construction.

B.   **Patent-Related Issues Concerning the Mapping Patents (the '443, '424 and '847 Patents)**

The '443 patent was filed on July 26, 2006. It claims priority to a patent application filed in 2000. The '424 patent is a continuation of the application that issued as the '443 patent. In turn, the '847 patent is a continuation of the application that issued as the '424 patent. The three patents ("the mapping patents"), therefore, share a common specification and are directed to "universal" memory card readers or adapters, *i.e.*, devices that are capable of interfacing with multiple types of memory cards.[11]

The following claims are asserted: from the '443 patent, independent claims 1 and 9, and dependent claims 3, 4, 7, 11, 12, and 14; from the '424 patent, independent claims 25 and 28, and dependent claims 26 and 29; and from the '847 patent independent claim 1, and dependent claims 2 and 3. ID at 12-16.

1.   **Infringement: "Mapping"**

The asserted claims are substantially similar and the only dispute at the Commission is with respect to the "mapping" limitations in each claim:

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[10] Prosecution disavowal makes the doctrine of equivalents unavailable to TPL. *See, e.g., American Calcar, Inc. v. American Honda Motor Co.,* 651 F.3d 1318, 1340 (Fed. Cir. 2011); *Southwall Techs., Inc. v. Cardinal IG Co.,* 54 F.3d 1570, 1576 (Fed. Cir. 1995).

[11] Unless otherwise noted, we refer to the '443 specification for convenience.

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- " a controller chip to map at least a subset of the at least one set of contact pins to a set of signal lines or power lines, based on an identified type of a memory media card." '443 patent claim 1; *accord* '443 patent claim 9.

- "means for mapping power, ground or data signals between said interconnection pins and said one or more contact pins depending upon the identification of the type of memory card inserted into said port." '424 patent claim 25; *accord* '424 patent claim 28 & '847 patent claim 1.

The ALJ construed what it means "to map":

> Thus, the ALJ construes "to map at least a subset of the at least one set of contact pins to a set of signal lines or power lines, based on an identified type of the memory media card" [and the corresponding claim from '443 patent claim 9] to have its plain and ordinary meaning as outlined above and with the caveat that the mapping must occur based on the type of memory card inserted.

Order No. 23 at 32-33.[12] By "outlined above," the ALJ references his explanation that "mapping is a logical function and does not require some physical connection be changed in the device in order to accomplish it." *Id.* at 29. No party challenged the ALJ's claim construction to the Commission.[13] On review by the Commission, then, is whether, based upon the ALJ's claim construction, the accused products and domestic industry products meet this claim limitation.

Explained at the simplest level, memory cards have sets of contacts for communication. The cards are read from or written to by connecting a pin to each contact (or to at least some of the contacts). *See, e.g.*, '443 patent col. 5 lines 22-24. The '443 patent teaches that notwithstanding that different types of cards have different contacts, an adapter can use the same pin for different cards. Figure 4, for instance, is a "table of pin mappings" that shows how 21 pins could be used to service a "Smart Media" card, an "MMC/SD" card,

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[12] For the means-plus-function limitations, the ALJ found that the recited function is the same as for the mapping in the non-means-plus-function claims, and that the corresponding structure is a controller. *Id.* at 35-37.

[13] The respondents had urged a narrower definition based upon prosecution disclaimer, *id.* at 28-30, but they chose not to advance that argument to the Commission.

or a Memory Stick. Figure 5 is a "table of pin mappings" that shows how 18 pins could be

used to control an even greater variety of cards. When a pin is shared, it is said in the patent

to be "multiplexed." The patent specification discusses Figure 5 in greater detail. '443

patent col. 6 lines 25-47.

The accused products are memory card readers that are designed to accommodate SD

cards and MMC cards, and no others. The patent explains that these two types of cards

"have the same form factor but slightly different pin-out." '443 patent col. 2 lines 1-2. The

similarities are such that every further reference of these two types of memory cards in the

asserted patents is conflated as "MMC/SD," including in Figures 4 and 5.

The respondents argued, and the ALJ found, that the claimed mapping does not occur

because the operation of MMC and SD cards is substantially the same. ID at 37-48. SD

cards can operate in one of two manners, with either a one-bit data bus (i.e., reading or

writing one bit of information at a time) or with a four-bit data bus (i.e., reading or writing

four bits in parallel, like a four-lane road instead of a one-lane road). In single-bit data bus

usage, there is no genuine dispute that the MMC and SD cards operate in essentially the same

manner. What remains is a theory of infringement reliant upon an SD card utilizing a four-

bit data bus. The only difference is that four-bit-bus operation of an SD card uses three more

pins than an MMC card (or than one-bit-bus operation of an SD card). ID at 45-46.

The parties' petitions for review contended that the ALJ's comparison of four-bit

data-bus SD versus MMC was inconsistent. In particular, the ID states as follows:

> The ALJ finds that Mr. Berg explained that distinguishing
> between an SD and MMC cards does not show evidence of the
> claimed "mapping" because, the evidence only shows that
> [███]
> according to the SD specification. (RX-2885C, Q/A 81-92; see also
> id. at Q/A 103-05, 110, 112-13, 119-21 (as to Acer).) Specifically, the

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> ALJ finds that a communication with an MMC card and
> communication with an SD card occurs across a 1-bit wide data bus.
> (*Id.* at 87.) The ALJ finds that Mr. Buscaino provided no evidence
> that any device ever operates using a data bus wider than 1-bit when
> an SD card is inserted, and Mr. Berg explained that such functionality
> is optional. (*Id.* at 88, 91-92.) Thus, although the ALJ notes that TPL's
> arguments regarding mapping were eminently reasonable, the ALJ
> finds that they have not proven that the "mapping" elements found in
> all the asserted claims of the '443, '424, and '847 Patents.
> Accordingly, the ALJ finds that because TPL has failed to prove the
> presence of all of the elements of the asserted claims, TPL has failed to
> prove infringement of the asserted claims of the '443, '424, and '847
> Patents.

ID at 48. But the ALJ also addressed the operation of the accused products in a four-bit bus

mode. *See, e.g.,* ID at 40-41 ([█████████████████████████████

████████████████]).

On review, we reverse the ALJ's determination that TPL failed to show that the

accused products can transfer data to or from SD cards with a four-bit-bus, and we vacate in

its entirety the paragraph reprinted in the block quotation above.[14] We find that TPL

demonstrated, by a preponderance of the evidence, operation of the accused products in a

four-bit-bus mode.[15] TPL Br. 26-31; TPL Reply Br. 22-27. As discussed extensively in

TPL's briefing, the evidence of record demonstrated the accused products all have

connectors with pins for the four bits of data and that the controllers in the accused products

are designed to process four bits of data. TPL Br. 26-31. We agree with TPL's

characterization of the record that "neither Respondents nor Respondents' experts or fact

witnesses dispute that the accused controllers operate in 4-bit SD mode when an SD card is

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[14] We give no weight to the ALJ's statement in the block quotation that certain TPL arguments were "eminently reasonable." We do not adopt that statement.

[15] The respondents' arguments in their briefs to the Commission regarding whether the accused products operate in four-bit mode are inconsistent with the evidence of record.

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inserted and in 1-bit MMC mode when an MMC card is inserted into the card connector."

TPL Br. 41; *see also id.* at 31.

Moreover, we agree with TPL that its substantial showing went well beyond what is necessary pursuant to the language of the asserted claims. We find that TPL showed that the accused products are at least capable of operating in a four-bit bus mode, and that is all that is ordinarily required for apparatus claims. The Commission most recently addressed this issue in *Certain Semiconductor Chips and Products Containing Same*, Inv. No. 337-TA-753, Comm'n Op. 37-39 (July 31, 2012). That case presented a factually analogous question. The Commission considered the following Federal Circuit authorities in detail: *Fantasy Sports Properties, Inc. v. Sportsline.com, Inc.*, 287 F.3d 1108, 1118 (Fed. Cir. 2002); *Silicon Graphics, Inc. v. ATI Technologies., Inc.*, 607 F.3d 784, 794 (Fed. Cir. 2010); and *ACCO Brands, Inc. v. ABA Locks Manufacturer Co.*, 501 F.3d 1307, 1310 (Fed. Cir. 2007). The claim language here is similar to that at issue in *Silicon Graphics* and *Fantasy Sports*.[16] Accordingly, it was not incumbent upon TPL to demonstrate actual use of the accused products in four-bit-bus mode.[17] Accordingly, we disagree with the first full paragraph of page 48 of the ID, in which the ALJ limits TPL's showing to one-bit-bus operation of the SD card, for which reason it has been vacated. We note that this paragraph in the ID was in

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[16] In *Silicon Graphics*, the patent claims called for "a rasterization circuit . . . that rasterizes the primitive according to a rasterization process," and the Federal Circuit found that the claim language merely required circuitry with the ability to rasterize. *Silicon Graphics*, 607 F.3d at 795. *Fantasy Sports* included claim language calling for a computer that included "means for setting up individual football franchises"; and other "means" for selecting rosters, trading players, and so forth. The court found that the infringing software (apparatus) included these means "regardless whether that means is activated or utilized in any way." *Fantasy Sports*, 287 F.3d at 1118. The claims in *ACCO*, on the other hand, called for a computer lock with: "a pin, coupled through said housing, for extending into said security slot proximate said slot engaging portion when said slot engagement member is in said locked position to thereby inhibit rotation of said slot engagement member to said unlocked position." *ACCO*, 501 F.3d at 1310. The Federal Circuit there found that the lock would only infringe after a user inserted the lock into a computer and turned the key to lock it. *Id.* at 1313-14.

[17] As discussed earlier, in any event, we have also found that TPL demonstrated such operation.

conflict with earlier passages of the ID, including from page 45 through the top of page 48, which analyzed four-bit-bus SD operation.

While we vacate one paragraph of the ID, we affirm the remainder of the ALJ's analysis of the accused products. In so doing, we affirm the ALJ's determination that a "card reader does not need to perform the claimed 'mapping' to accommodate SD and MMC card types in the same slot." ID at 46. We disagree with TPL's contention that the ALJ's reasoning was based solely on the SD Specification's initialization processes. TPL Pet. 18-25, 34-35; *see* ID at 47-48. Rather, the ALJ explained that the "only difference between" SD and MMC "cards is that the data in the SD card is a four bit bus, which requires four pins for data, and the MMC card only requires one." ID at 45 (citing RX-2369.0019; RDX-0482). The ALJ explained that the "[███████████████████████████████████████

██

██]." *Id.* (citing RX-2888C, Q/A 56-60, 160-79; RX-22369.0019-20; JX-0068.0019-20; RDX-0412; RDX-0480; RDX-0481). We agree with the ALJ that "[████████████████████

██████████████████████]." *Id.* at 45 (citing CX-354C.18; CX-296C.27). As the ALJ extensively and correctly discussed, in order to communicate with the SD and MMC cards, no mapping is required. Similarly, the mere use of additional signal lines in some circumstances but not others, based upon fixed assignments, does not constitute mapping. ID at 45; Resp'ts Br. 45-46 (citing RX-2885C, Q/A 265, 313, 355, 414, 461, 522, 564; RX-2888C Q/A 589, 634-35 (HP); RX-2888C Q/A 92, 180-88, 926-27; RX-3418C; RX3450 (Seiko Epson); RX-2888C Q/A 835-36, 864-65, CX-0322 (Newegg/Rosewill); RX-2888C, Q/A 256-76, 285-94, 226-47, 250-53 (Canon); RX-2885C, Q/A 75-80 (HP); RX-

2888C Q/A 761-62 (Kingston); RX-2888C, Q/A 453-64; RX-3481C, Q/A 30-36 (HiTi); Tr. 538-39).

2.   Invalidity

On petition for review, the respondents contingently petitioned for review of the ALJ's determination that the asserted patent claims are not invalid as anticipated in view of certain prior art references. Resp'ts Pet. 60-73. *See* Resp'ts Pet. 62 (SD Specification); Resp'ts Summary of Pet. VI ("To the extent that the Commission reverses the ALJ's finding of non-infringement for the '443, '424, and '847 patents, the Commission should nonetheless find no violation because the record evidence clearly shows that these patents are invalid.").

We have determined to reach two of these arguments. In particular, Question No. 3 of the Commission notice of review asked the parties to brief whether TPL contested the respondents' invalidity arguments regarding Japanese patent publication JP H11-15928 ("the '928 Publication") (RX-817). The ALJ found that the '928 Publication is prior art to the mapping patents under 35 U.S.C. § 102(b), but found that the respondents' arguments in support of invalidity were too cursory to be preserved. ID at 108. Question No. 3 in the Commission notice asked whether invalidity in view of the '928 Publication was uncontested, in which case the Commission might excuse the lack of detailed briefing as to issues for which there was no genuine material dispute. *See, e.g., Certain Mobile Devices, Associated Software and Components Thereof,* Inv. No. 337-TA-744, Comm'n Op. 11-16 (May 18, 2012).

The respondents here argued that the '928 Publication anticipates all the asserted claims of the mapping patents, by describing the publication in only one paragraph, Resp'ts Post-Hearing Br. 153-54, and then asserting anticipation based upon citation to expert

CERTAIN COMPUTERS AND COMPUTER PERIPHERAL
DEVICES AND COMPONENTS THEREOF AND
PRODUCTS CONTAINING THE SAME

Inv. No. 337-TA-841

PUBLIC CERTIFICATE OF SERVICE

I, Lisa R. Barton, hereby certify that the attached **COMMISSION OPINION** has been
served upon the following parties as indicated on **January 9, 2014**.

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Certificate of Service – Page 2

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